

REMARKS

I. Status of the Application

Claims 1-24 are pending in this application. Claim 5 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Haydock, EP 0 926 552 A1. Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Derrick, GB 2 169 402A. Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Derrick '402 in view of Takahashi et al., U.S. 5,935,361. Claims 2-5 and 7-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Haydock '552 in view of Derrick '402 further in view of Takahashi et al., '361.

Applicants have amended certain of the claims and added new claims to more clearly define and distinctly characterize Applicants' novel invention. Claim 1 has been amended to clarify the method. Support for the amendments and for the new claims can be found in the specification and the claims as originally filed. Support for the amendments to claim 1 and for new claim 25 can be found in claim 1 as originally filed and in the specification at least at page 2, line 29 to page 3, line 28. New claims 26-28 are supported at least at page 5, lines 14-32. Support for new claims 29 and 30 is found at least at page 3, lines 3-8. Support for new claims 31 and 32 is found at least at page 5, lines 8-13. Applicants respectfully submit that the amendments and new claim presented herein add no new matter.

Applicants respectfully request entry and consideration of the foregoing amendments, which are intended to place this case in condition for allowance. Applicants further submit that the present amendments were not submitted at an earlier date as the Examiner's rejections were believed to have been fully met by the amendments and remarks made in the response to the previous Office Action. Thus, this response represents the Applicants' only opportunity to make the present amendments and remarks a part of the record in this application.

Entry is believed proper at this time because the amendments (1) do not raise any new issues that would require further consideration and/or search, since they are the same in scope and content to the claims already considered by the Examiner; and (2) they do not introduce any new matter to the application. Applicants respectfully request entry and consideration of the foregoing amendments, which are intended to place this case in condition for allowance.

II. Claim 5 Is Novel Over Haydock, EP 0 926 552 A1.

Claim 5 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Haydock, EP 0 926 552 A1. Applicants respectfully traverse this rejection.

Haydock '552 does not disclose a method for indicating a quality problem area on a web in which the down-web starting position of the quality problem area is marked with an ISO-hole as required by claim 5. The Examiner has cited paragraphs 0008 and 0009 of Haydock '552 as teaching "the use of ISO holes (index holes) to measure the start of quality problems (imperfections)." Haydock does not so disclose. Instead, Haydock discloses at paragraph 0008 that "[a]ssignment of defective locations within a web is provided using linear measurements" (line 41), said linear measurements being generally a "contact method" (lines 39-40). Haydock does not here disclose the use of ISO-holes to indicate quality problem areas on a web. Haydock discloses in paragraph 0009 that, "[i]n printing of the web material, it is common for the exposing equipment to create an indexing punch hole between each exposure and also between customer orders" (lines 46-47). Here, the index holes do not relate in any way to a quality problem area on the web, and are instead used only to indicate the separation between prints and between customer orders. Of note, Haydock does not disclose using ISO-holes to indicate the location of a splice, thus rendering the argument over whether such a splice would constitute a

defect or quality problem area moot. Haydock nowhere indicates in any way that ISO-holes are used to indicate a quality problem area, and thus cannot anticipate claim 5.

As Haydock '552 fails to disclose all of Applicants' claim limitations, Applicants respectfully request that the rejection of claim 5 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

III. Claim 1 Is Novel Over Derrick, GB 2 169 402A.

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Derrick, GB 2 169 402A. Applicants respectfully traverse this rejection.

Derrick '402 fails to disclose a method of measuring a down-web coordinate of a quality problem in which the measured down-web coordinate is synchronized with an indicated down-web coordinate of said mark. Initially, as advanced in Applicants' previous amendment, a continuously-running conveyor belt is fundamentally different from a continuous web being wound on a roll. "Down-web" is defined at page 1, lines 17-20 of the present application as follows:

The term "down-web" is referring to an orientation in the winding direction of a web that is winded on a roll

Therefore, the method of claim 1 requires the measurement of a coordinate of a quality problem in the winding direction of a web that is winded on a roll. One of the advantages of the present invention is that this coordinate now can be precisely measured, which permits, for example, rewinding the roll to a very accurate location by which only a limited amount of good product need be removed while removing the quality problem area. In the case of spot defects, a mark, for example, an ISO-hole, can be applied wherein the mark can be recognized by the processing

equipment that the roll will later be subject to. This processing equipment can then be set up to skip over the spot defect indicated by the mark. In such a fashion, the roll need not be unwound at the manufacturing stage (see specification at page 4, lines 8-27). The conveyor belt of Derrick '402, on the other hand, is not winded on a roll, but rather forms a continuous loop. As such, the concern with unwinding the roll or subjecting the roll to further processing equipment does not arise. As Derrick '402 does not disclose a web winded onto a roll, Derrick does not anticipate claim 1.

In the present Office Action at paragraph 7, the Examiner has indicated that the inclusion of the term "roll" in claim 2 necessarily excludes a roll from claim 1. The Examiner has misread the use of the term "roll" in claim 2, however. Claim 2 recites a method according to claim 1, wherein, the down-web coordinate is measured in an ascending or a descending mode, depending on a detected roll-orientation information originated from said mark on said web. The only appearance of the term "roll" in claim 2 occurs in the phrase "roll-orientation information." Claim 2 does not recite for the first time a roll; rather, it requires information relating to the orientation of the roll. As noted above, the inclusion of a roll is required by the use of the phrase "down-web." The Examiner indicates that where a roll is expressly recited, art is applied, presumably indicating that were the Examiner to believe that a roll was included in claim 1, the claim would have been rejected along with claims 2-5 and 7-24 under 35 U.S.C. § 103(a) as being unpatentable over Haydock '552 in view of Derrick '402 further in view of Takahashi et al., '361. The patentability of claim 1 over these combined references is addressed below.

Claim 1 is novel over Derrick '402 for the separate and independent reason that Derrick '402 fails to disclose synchronizing the measured down-web coordinate of a quality problem with the indicated down-web coordinate of the mark as required by claim 1. Derrick discloses

no more than using a recognition marker to identify a particular reference point on the belt so that the position of tears can be calculated by relating the quantity of time that has passed between the passage of a tear in the belt and the reference point and the known velocity of the conveyor belt. See page 1, lines 54-63. Such is necessary in Derrick because the conveyor belt has no fixed beginning or end point; the recognition marker is needed to create a starting point. Upon relating these characteristics to determine the location of the tear, Derrick does not synchronize the location, as determined by the velocity/time relation, with anything. Claim 1, on the other hand, requires synchronizing the measured down-web coordinate of a quality problem with an indicated down-web coordinate of a position-indicating mark. As Derrick '402 does not disclose such a synchronization, Derrick cannot anticipate claim 1.

As Derrick '402 does not disclose each and every limitation of claim 1, Applicants request that the rejection of claim 1 under 35 U.S.C. § 102(b) be withdrawn and that claim 1 be allowed over Derrick '402.

IV. Claim 6 Is Non-Obvious Over Derrick '402 in View of Takahashi et al., U.S. 5,935,361.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Derrick '402 in view of Takahashi et al., U.S. 5,935,361. Applicants respectfully traverse this rejection.

To establish a *prima facie* case of obviousness, the Examiner must show (1) some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings; (2) a reasonable expectation of success; and (3) the references when combined must teach or suggest all of the claim limitations. MPEP 2143.

A. There Is No Motivation to Modify Derrick with Takahashi et al.

As to the first of these, there are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. In re Rouffet, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Here, a *prima facie* case of obviousness cannot be established because there is no motivation to modify the Derrick apparatus for detecting tears in a conveyor belt with the web splicing apparatus of Takahashi et al. The Examiner has indicated that Takahashi et al. is used to modify the conveyor belt of Derrick by adding ISO-holes in the conveyor belt, and cites as motivation to combine the references that “each invention has the same endeavor of identifying defective areas on a web,” and that modifying the conveyor belt of Derrick to replace the metal disk markers with the ISO-holes of Takahashi et al. would “eliminate the need for time consuming human inspection and rolling up scrap webs as taught by ‘361 in column 1, lines 43-45.” (Office Action at paragraph 5). Such will not, however, serve as motivation to modify the reference.

First, the two references do not share as their endeavor identifying defective areas on a web. Derrick is concerned with a method for identifying tears only in a conveyor belt, not on a continuous web. A conveyor belt is not a continuous web, as required by the claim. See column 1, lines 19-26 of Derrick:

[c]onveyor belts are usually formed by fastening together several individual sections of belting. The adjacent ends of neighboring sections of belt are fastened together by means of loops fixed to the end of each section of belt, which loops are interleaved with one another such that a wire passing through them fastens the belt together.

See also FIG. 1a of Derrick, which shows the conveyor belt to be an interconnected series of belt sections, wires and loops. Takahashi et al., on the other hand, are concerned with

splicing webs together in a fashion to overcome the cited disadvantages with the identified prior art, such as the time required to insert an ISO hole the need to dispose of web at the periphery of a splice, and accurately estimating the length of web on a roll. See generally the Background section of the '361 patent. Takahashi et al. does not refer to detecting defects on the web, merely with creating splices in more streamlined and automated fashion. Thus, the references do not share a common endeavor that might motivate one to look to Takahashi et al. to modify Derrick.

Second, one would not look to Takahashi et al. because the conveyor belt of Derrick contains no splices; thus, there is no motivation to look to a splicing apparatus to modify Derrick. As noted above, the conveyor belt comprises individual sections of belt that are held together by loops extending around a common wire. Further, a complex splicing apparatus like that of Takahashi et al. would be entirely unsuitable for a conveyor belt because the conveyor belt must form a loop around the conveyor apparatus; repair of the conveyor belt would typically be expected to take place without removal of the belt, and certainly the final joining of the opposite ends of the conveyor belt must occur *in situ* and could not possibly be accomplished with the Takahashi et al. device.

Finally, the advantages that the Examiner alleges would result from the modification of Derrick with Takahashi et al. are in fact not advantageous to Derrick. To punch holes in the conveyor belt of Derrick is not desired; the whole purpose of Derrick is to identify holes in the belt so that they can be repaired. Conveyor belts are typically used to carry items from one place to another; holes in the belt would certainly render the belt less suitable for such a purpose. Additionally, the apparatus of Derrick provides for

automated inspection of the belt already; no elimination of the need for time consuming human inspection would result from so modifying Derrick. Lastly, there is no scrap to roll up in Derrick that modification might eliminate. Unlike the photographic printing paper of Takahashi et al., column 1, lines 33-45, there is no periphery of the conveyor belt of Derrick to roll up as scrap.

As the Examiner has failed to demonstrate a motivation to combine the references, a *prima facie* case of obviousness has not been made, and Applicants request the rejection of claim 6 based on 103(a) be withdrawn.

B. The Combined References Do Not Teach or Suggest All of the Claim Limitations

Even were Derrick to be combined with Takahashi et al., the combined references do not teach or suggest each of the claim limitations. Derrick does not teach or suggest a system for tracking quality problem areas at continuous-web products, instead concerning itself only with the limited problem of tears in a conveyor belt comprised of interlooped discrete belt sections. For the Derrick tear detector to function, the defect must be such that a beam of light may pass through from a source to a detector, i.e. there must be a tear or hole in the belt. See FIGS.1a and 1b, showing light emitting from source 6 and passing through to receiver 7 only when a tear is present. Derrick cannot be used to track quality problems such as non-tear problems with the coatings. Derrick also fails to teach or suggest a punch control system for ISO hole punching provided with length-measuring circuitry synchronized with detected down-web coordinates.

Takahashi et al., on the other hand does not teach or suggest a system for tracking quality problem areas on a continuous web product, concerning itself only with the creation of splices, and also fails to teach or suggest a punch control system for ISO hole

punching provided with length-measuring circuitry synchronized with detected down-web coordinates. The ISO hole punching device 100 is not synchronized in Takahashi et al.

As the references do not teach or suggest each of the claim limitations, a *prima facie* case of obviousness has not been made, and Applicants request the rejection based on 103(a) be withdrawn.

V. Claims 1-5 and 7-24 Are Non-Obvious Over Haydock ‘552 in View of Derrick ‘402 further in View of Takahashi et al., ‘361.

Claims 2-5 and 7-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Haydock ‘552 in view of Derrick ‘402 further in view of Takahashi et al., ‘361. Applicants respectfully traverse this rejection and further assert that claim 1 is patentable over these references.

As indicated above, there is no motivation to combine the Derrick reference with the Takahashi et al. reference. There is similarly no motivation (nor has the Examiner suggested a motivation) to combine the Haydock reference with the Takahashi et al. reference. Haydock is concerned with a method for measuring the displacement and cross web locations of continuous web materials through printing the back of the web with machine readable invisible indicia. See page 3, lines 5-20 of Haydock. Haydock does not teach or suggest the use of ISO-holes, and instead teaches away from such a use:

it is not uncommon for difficulties to arise during the handling and indexing of web materials, such as missed punch holes.

Paragraph 0009 at lines 50-51.

There is a further need to provide a cleaner environment for imaging equipment, particularly photographic printers in order to reduce the generation of paper dust and other related dirt resulting from the index hole punching operations currently in use.

Paragraph 0010 at lines 56-58.

Thus, there is no motivation to combine Haydock with Takahashi et al.

Additionally, even combining the three references, there is no teaching or suggestion of synchronizing the measured down-web coordinate of a quality problem with the indicated down-web coordinate of the position-indicating mark as required by claims 1-5 or of a punch control system provided with length-measuring circuitry synchronized with detected down-web coordinates as required by claims 7-24. None of the references provide for such synchronization.

Finally, as Takahashi et al. is not properly combinable with the other references, the remaining references fail to teach or suggest the use of ISO-holes to mark the starting position of a quality problem area on a web as required by claim 4 or a punch control system for ISO-hole punching as required by claims 7-24. Derrick makes no reference to ISO-holes, while Haydock teaches away from the use of such as identified above.

As the references do not teach or suggest each of the claim limitations and are not properly combinable, a *prima facie* case of obviousness has not been made, and Applicants request the rejection based on 103(a) be withdrawn.

VI. CONCLUSION

Reconsideration and allowance of all the pending claims is respectfully requested. If a telephone conversation with Applicants' attorney would expedite prosecution of the above-identified application, the Examiner is urged to call the undersigned at (617) 720-9600.

The Commissioner is hereby authorized to charge any additional fees or credit overpayment to Deposit Account No. 19-0733.

Respectfully submitted,

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Thomas P. McNulty, Reg. No. 52,019
BANNER & WITCOFF, LTD.
28 States Street, 28th Floor
Boston, MA 02109
(617) 720-9600